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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,376	12/05/2005	Masamichi Morita	Q86778	6763
23373	7590	04/30/2008	EXAMINER	
SUGHRUE MION, PLLC			HIGGINS, GERARD T	
2100 PENNSYLVANIA AVENUE, N.W.			ART UNIT	PAPER NUMBER
SUITE 800			1794	
WASHINGTON, DC 20037				
MAIL DATE		DELIVERY MODE		
04/30/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/528,376	<b>Applicant(s)</b> MORITA ET AL.
	<b>Examiner</b> GERARD T. HIGGINS	Art Unit 1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 27 March 2008.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 7-14 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-6 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 March 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-166/08)  
 Paper No(s)/Mail Date 03/18/2005
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. The response filed 03/27/2008 has been received. Currently claims 1-14 are pending.

***Election/Restrictions***

2. Applicant's election without traverse of Group I, claims 1-6 in the reply filed on 03/27/2008 is acknowledged.
3. Claims 7-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 03/27/2008.

***Priority***

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

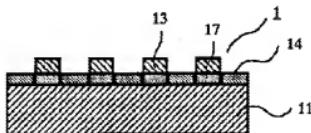
Art Unit: 1794

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida (JP 2002-023356), machine translation included.

With regard to claim 1, Ishida discloses a material useful for semiconductor devices, displays, LED's etc. [0002] and Figure 5. The substrate **11** is the same type of materials as used by applicants [0013], and there is an alternating line pattern [0031] comprised of a 1<sup>st</sup> (**14**) and 2<sup>nd</sup> (**17**) self-organization organic thin films [0017] and [0018], respectively. The 1<sup>st</sup> self-organization film is comprised of fluoro alkyl silanes. A conductive material is then formed above the 2<sup>nd</sup> self-organizing film by use of a plating method [0033]. The device is anisotropic because the characteristics of the surface will differ in the direction of the alternating line pattern.

[图5]



With regard to claim 2, the Examiner has reason to believe that the surface free energy difference between the alternating line patterns on the device of Ishida inherently comprises the values claimed. The Examiner has reason to believe this because Ishida teaches at [0004] that it is known in the art to vary the functionality of the alternating lines to thereby change the surface characteristics of the alternating

lines. Surface free energy is a “surface characteristic” as taught by Ishida; furthermore, since the materials of the alternating line pattern are the same as those claimed by applicants, they would inherently display the surface free energy difference claimed by applicants.

With regard to claim 3, Ishida teaches at [0031] that the width and pitch of the lines are 20 microns.

With regard to claim 4, Ishida teaches at [0015] that the self-organization layers of the present invention are excellent in forming “uniform films with a molecular level.” A uniform film would necessarily have an unevenness of less than 10 nm, especially considering the organic films are on the order of 3 nm thick [0014].

With regard to claim 5, the Examiner has reason to believe that the device of Ishida would inherently comprise the testing conditions of applicants’ claim 5. The Examiner has reason to believe this because the materials that comprise the alternating line pattern of Ishida are the same as those claimed by applicants.

With regard to claim 6, Ishida teaches at [0018] that the 2<sup>nd</sup> self-organizing material may have a thiol functional group on the surface thereof.

#### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida (JP 2002-023356) in view of Katz et al. (EP 1041652).

Ishida teaches an alternating line pattern substrate; however, it does not disclose the use of a layer of a semiconductor compound as the functional material.

Katz et al. teach using organic semiconductor materials as a functional material for fabricating circuitry (Abstract and [0022] to [0023]). These materials can be bound to fluorinated silane surfaces [0030] and [0031].

Since Ishida and Katz et al. are both drawn to patterning of substrates for circuit technology, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the organic semiconductor materials of Katz et al. as the functional material of Ishida. The results of which would have been entirely predictable to one having ordinary skill in the art of semiconductor manufacture. Specifically, one of ordinary skill would understand that the organic semiconductor material would bind to the 1<sup>st</sup> self-organizing material (fluoro alkyl silanes) instead of binding to the thiol or amino modified 2<sup>nd</sup> self-organizing material.

With regard to claim 2, the Examiner has reason to believe that the surface free energy difference between the alternating line patterns on the device of Ishida intrinsically comprises the values claimed. The Examiner has reason to believe this because Ishida teaches at [0004] that it is known in the art to vary the functionality of the alternating lines to thereby change the surface characteristics of the alternating lines. Surface free energy is a "surface characteristic" as taught by Ishida; furthermore, since the materials of the alternating line pattern are the same as those claimed by

applicants, they would intrinsically display the surface free energy difference claimed by applicants.

With regard to claim 3, Ishida teaches at [0031] that the width and pitch of the lines are 20 microns.

With regard to claim 4, Ishida teaches at [0015] that the self-organization layers of the present invention are excellent in forming "uniform films with a molecular level." A uniform film would necessarily have an unevenness of less than 10 nm, especially considering the organic films are on the order of 3 nm thick [0014].

With regard to claim 5, the Examiner has reason to believe that the device of Ishida would intrinsically comprise the testing conditions of applicants' claim 5. The Examiner has reason to believe this because the materials that comprise the alternating line pattern of Ishida are the same as those claimed by applicants.

With regard to claim 6, Ishida teaches at [0018] that the 2<sup>nd</sup> self-organizing material may have a thiol functional group on the surface thereof.

### ***Conclusion***

9. With regard to the additional 'X' references on the international search report, they are considered cumulative to the present rejection because they are all Seiko Epson patent applications concerning the same substrates with alternating line patterns of the same materials (fluoro alkyl silanes) formed therein.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is

(571)270-3467. The examiner can normally be reached on M-F 7:30am-5pm est. (1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gerard T Higgins, Ph.D.  
Examiner  
Art Unit 1794

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Examiner, Art Unit 1794

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